



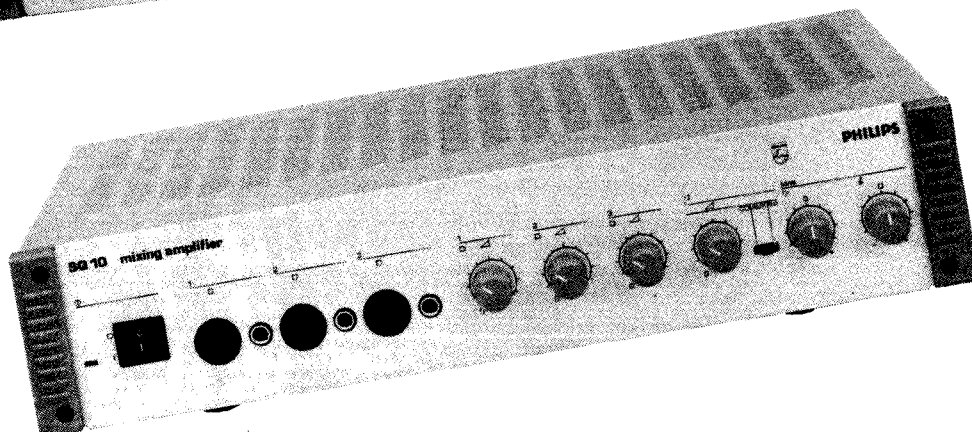
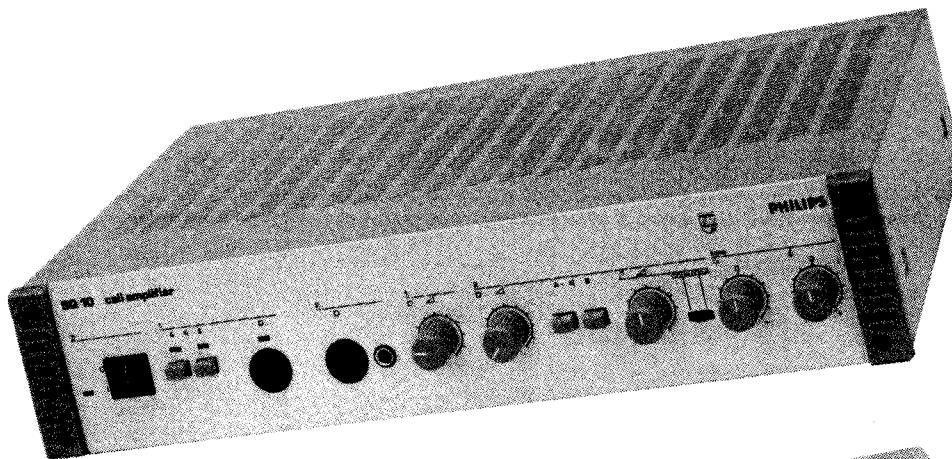
PHILIPS

SQ10 AMPLIFIERS

LBB 1211 LBB1212 LBB1213

LBB 1216 LBB1217

Service Manual



4822 733 24383
890626

**CUSTOMER
SUPPORT**

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SQ10 AMPLIFIERS

- Inputs
microphones: 1.5 mV, 2 kOhm
CD: 200 mV, 47 kOhm
AUX: 100 mV, 22 kOhm
Tape in: 100 mV, 22 kOhm
Tape out: 350 mV, 5 kOhm

SQ10 AMPLIFIERS

4. SPARE PARTS

Description:	Code Number:
DIN socket	5322 267 40832
Jack socket	5322 267 40831
Potmeter 50K lin 0.1W	5322 101 40148
Potmeter 50K log 0.1W	5322 101 50277
Turning knob	5322 414 30152
Power switch	5322 277 11136
Output connector	5322 267 40833
Power transformer 30W	5322 140 60291
Power transformer 60W	5322 140 60292
Transistor 2SD613E	4822 130 41577
Transistor 2SC3281	4822 130 42227
Fuse 5A fast	5322 253 40055
Fuse 8A fast	5322 253 40034
Fuse 1A slow	4822 253 30021
Fuse 1.6A slow	4822 253 30024
Relay SCLD-P4	5322 280 80603
Relay SCLB-P2	5322 280 80602
Switch S101	5322 273 20314
Switch S101-105	5322 273 50301
Push button knob	5322 414 20271
Fan	5322 361 10519

SQ10 AMPLIFIERS

1. GENERAL

The SQ10 series of amplifiers are suitable for various PA applications. The amplifiers can operate either on 110/127/220 or 240V, 50-60Hz AC supply or on +24V DC supply as standby power.

2. TYPE NUMBERS

The SQ10 range of amplifiers consists of following type numbers:

- LBB 1211/00 30W mixing amplifier
- LBB 1212/00 60W mixing amplifier
- LBB 1213/00 120W mixing amplifier
- LBB 1216/00 30W call amplifier
- LBB 1217/00 60W call amplifier

3. TECHNICAL DATA

3.1 MECHANICAL

3.1.1 Inputs

- Call amplifiers LBB 1216 and LBB 1217
 - 1 microphone input with chime and priority muting channel 2 and 3
 - 1 microphone input
 - 1 compact disk input
 - 1 auxiliary input
 - 1 tape recorder input
 - 1 tape recorder output

The microphone inputs are 5-pole lockable DIN sockets with a parallel 6.3 mm jack socket for input 2.

The music inputs are cinch sockets with 2 sockets for each input.

- Mixing amplifiers LBB 1211, LBB 1212 and LBB 1213
 - 1 microphone input with priority muting channel 2, 3 and 4
 - 2 microphone inputs
 - 1 compact disk input
 - 1 auxiliary input
 - 1 tape recorder input
 - 1 tape recorder output

The microphone inputs are 5-pole lockable DIN sockets with a parallel 6.3 mm jack socket for each input.

The music inputs are cinch sockets with 2 sockets for each input.

SQ10 AMPLIFIERS

3.1.2 Outputs

- Call amplifiers LBB 1216 and LBB 1217

Main output

two selectable music/call and call only output groups
music only output

All output connections are provided at the rear panel and are free from earth.

- Mixing amplifiers LBB 1211, LBB1212 and LBB 1213

Outputs for 8 Ohm, 50V, 70V and 100V are provided at the rear panel and are free from earth.

3.1.3 Switches

- Call amplifiers LBB 1216 and LBB 1217

Mains switch: a on/off push button provided on the front panel

Channel select: a 3 position slide switch on the front panel

Output group select: 2 push buttons on the front panel

Music select: 2 push buttons on the front panel

- Mixing amplifiers LBB 1211, LBB 1212 and LBB 1213

Mains switch: a on/off push button provided on the front panel

Channel 4 switch: a 3 position slide switch on the front panel

3.1.4 Indications

- Call amplifiers LBB 1216 and LBB 1217

a green LED for power on indication

2 yellow LED's for output group selection indication

a red LED for microphone on indication

- Mixing amplifiers LBB 1211, LBB 1212 and LBB 1213

a green LED for power on indication

3.2 ELECTRICAL

- Mains: the amplifiers can operate on 110, 127, 220 and 240 V
+/- 10% 50- 60 Hz

- DC supply: rated DC supply 0, +24 V +/- 10%. the amplifier is protected against reversal connection of the supply.

- | | | | |
|----------|------|-----------|-----------|
| - Fuses: | DC | 110/127 V | 220/240 V |
| 30 W | T5A | T2A | T1A |
| 60 W | T8A | T3.15A | T1.6A |
| 120 W | T10A | T5A | T2.5A |

SQ10 AMPLIFIERS

A thermal fuse is provided inside the mains transformer to prevent overheating of the mains transformer.

- Rated output power

60 W amplifiers: mains: at THD = 5% Pout => 60 W acc. to IEC268
DC: at THD = 5% Pout => 30 W acc. to IEC268

30 W amplifiers: mains: at THD = 5% Pout => 30 W acc. to IEC 268
DC: at THD = 5% Pout => 15 W acc. to IEC 268

120 W amplifiers: mains: at THD = 5% Pout => 120 W acc. to IEC 268
DC: at THD = 5% Pout => 60 W acc. to IEC 268

- Rated temperature limited output power:

acc. to IEC 65; at 220 V + 10%, Tamb = 45 degr.C. 1/8 of rated output power.

- Maximum output voltage at unloaded 100 V tap:

distortion 5%, output voltage <= 150 V at 1000 Hz.

- Frequency response:

With tone control flat and measured at 10 dB below rated output power: within +1/-3 dB between 60 Hz and 12.5 kHz.

Speech filter: high pass filter -3 dB +1/-2 dB at 315 Hz and a slope of 6 dB/octave.

- Power bandwidth:

at 5% distortion power bandwidth: 150 Hz - 12 kHz (-3dB).

- Distortion: total harmonic distortion at rated output power at 1 kHz less than 5% at all taps with appropriate loads:

LBB 1211/00

tap:	output (mains)	output (DC)	rated load
100 V	100 V	85 V	333 Ohm
70 V	70 V	60 V	163 Ohm
50 V	50 V	40 V	83 Ohm
8 Ohm	15.5 V	13 V	8 Ohm

LBB 1212/00

tap:	output (mains)	output (DC)	rated load
100 V	100 V	80 V	164 Ohm
70 V	70 V	55 V	81 Ohm
50 V	50 V	40 V	41 Ohm
8 Ohm	22 V	18 V	8 Ohm

SQ10 AMPLIFIERS

LBB 1213/00

tap:	output (mains)	output (DC)	rated load
100 V	100 V	80 V	83 Ohm
70 V	70 V	55 V	41 Ohm
50 V	50 V	40 V	21 Ohm
8 Ohm	31.1 V	24.6 V	8 Ohm

LBB 1216/00

tap:	output (mains)	output (DC)	rated load
100 V	100 V	85 V	333 Ohm
70 V	70 V	60 V	163 Ohm
50 V	50 V	40 V	83 Ohm

LBB 1217/00

tap:	output (mains)	output (DC)	rated load
100 V	100 V	80 V	164 Ohm
70 V	70 V	55 V	83 Ohm
50 V	50 V	40 V	41 Ohm

- Total harmonic distortion at rated output power -20 dB at 1 kHz:
< 3%

- Tone controls:

Bass: range +/- 8 dB min. at approx. 100 Hz

Treble: range +/- 8 dB min. at approx. 10 kHz

- Hum and noise: (microphone connected with 600 Ohm, aux connected with 2 kOhm)

all volume controls min: -70 dB w.r.t. rated output power

one microphone max.: -55 dB w.r.t. rated output power

line: -60 dB w.r.t. rated output power

- Mains current consumption:

30 W amplifiers:

on 220 V AC +10% no load: approx. 0.1 A

while delivering rated output power: approx. 0.5 A

60 W amplifiers:

on 220 V AC +10% no load: approx. 0.15 A

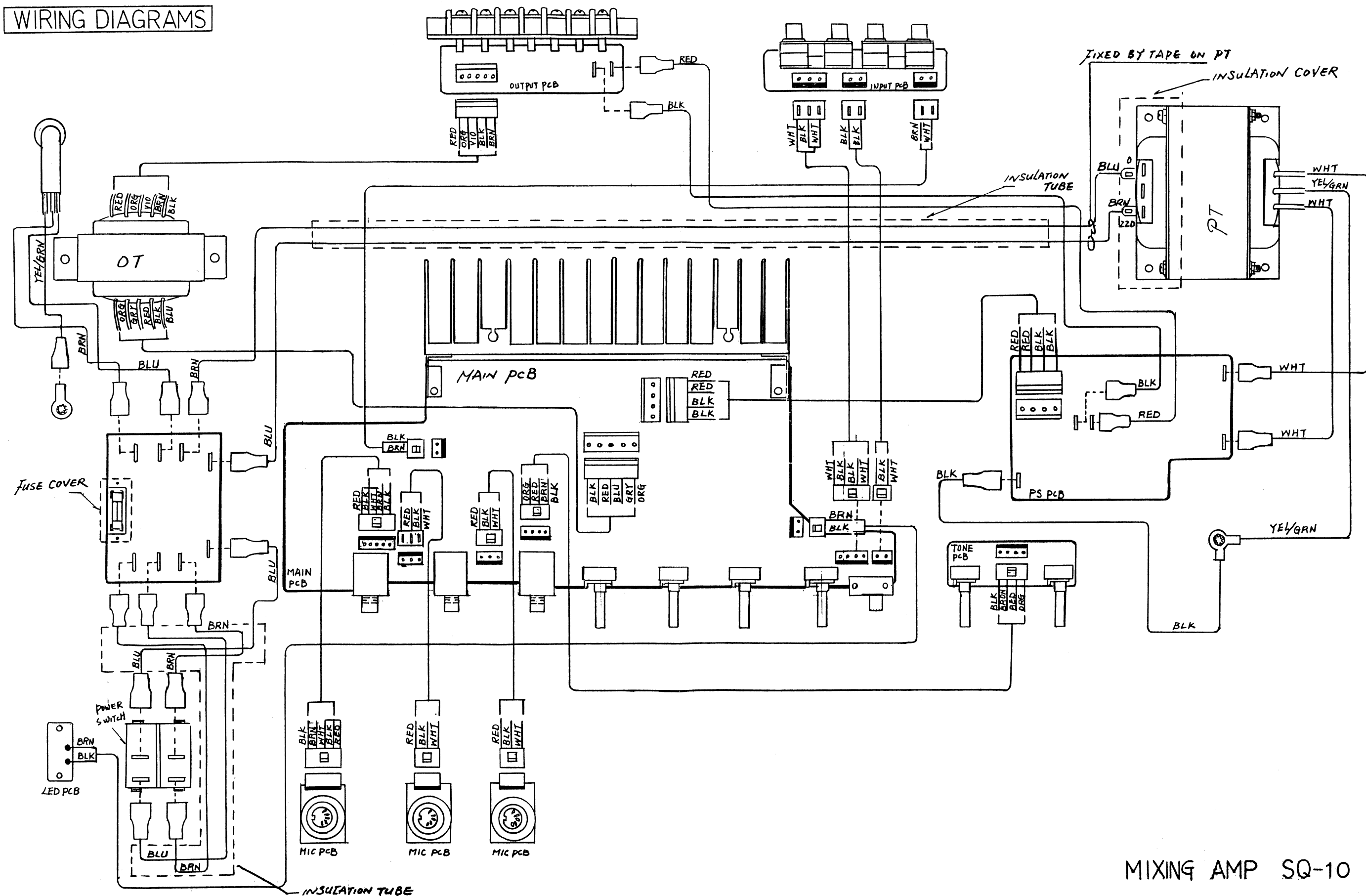
while delivering rated output power: approx. 0.8 A

120 W amplifiers:

on 220 V AC +10% no load: approx. 0.2 A

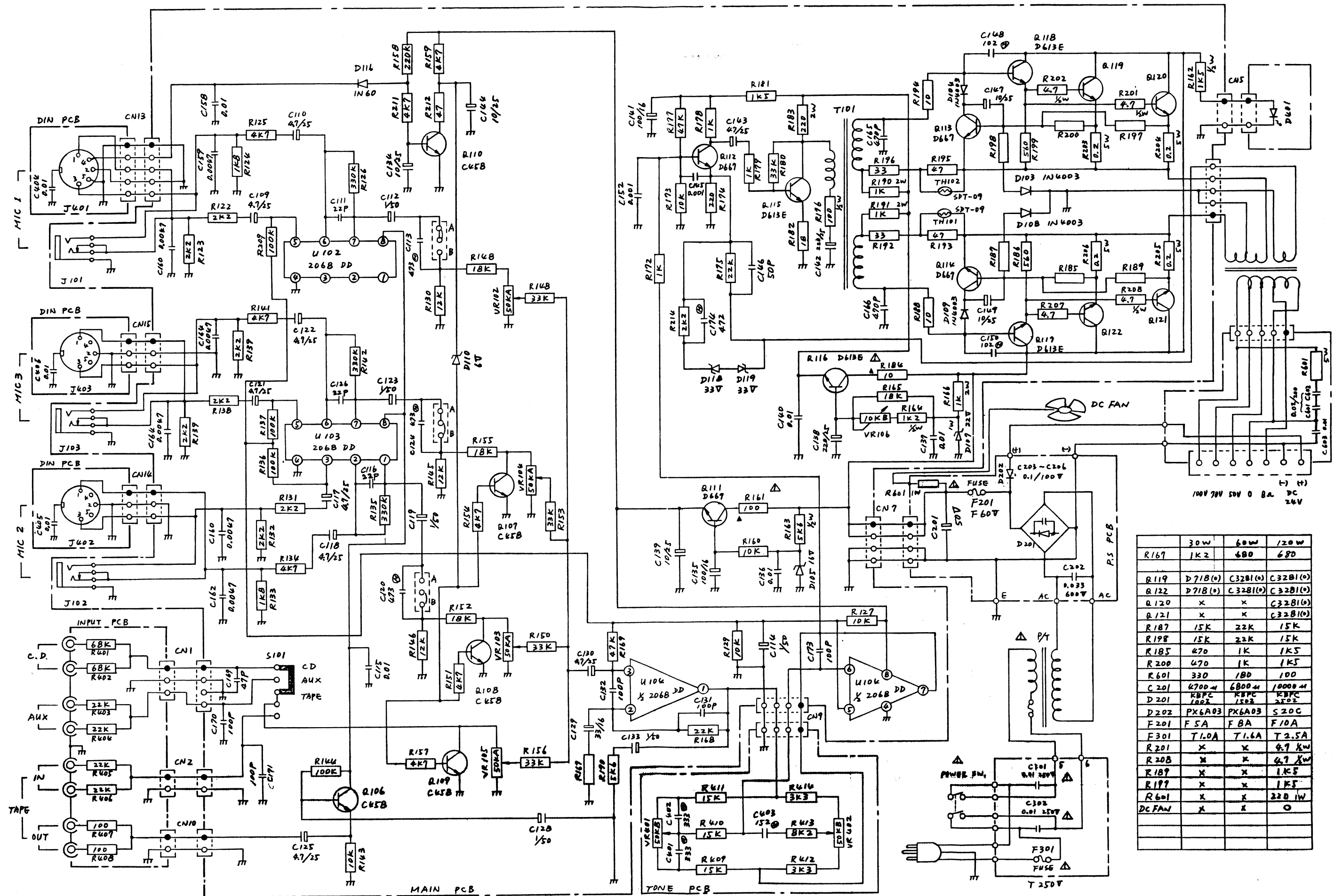
while delivering rated output power: approx. 1.6 A

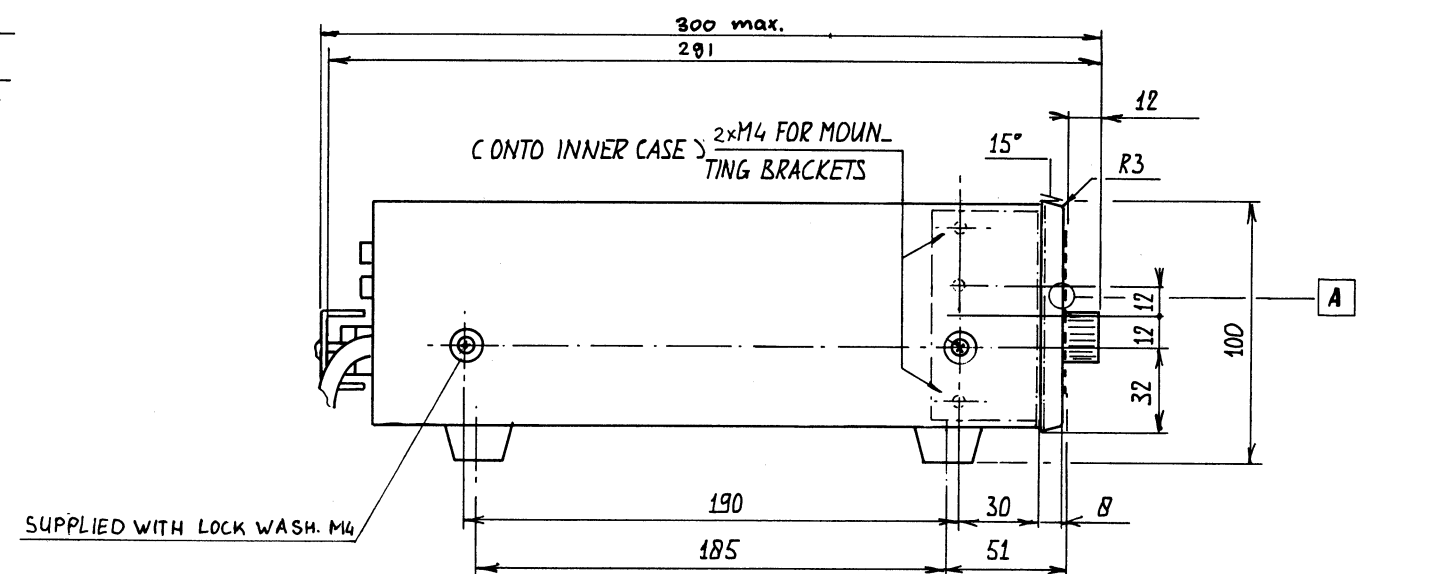
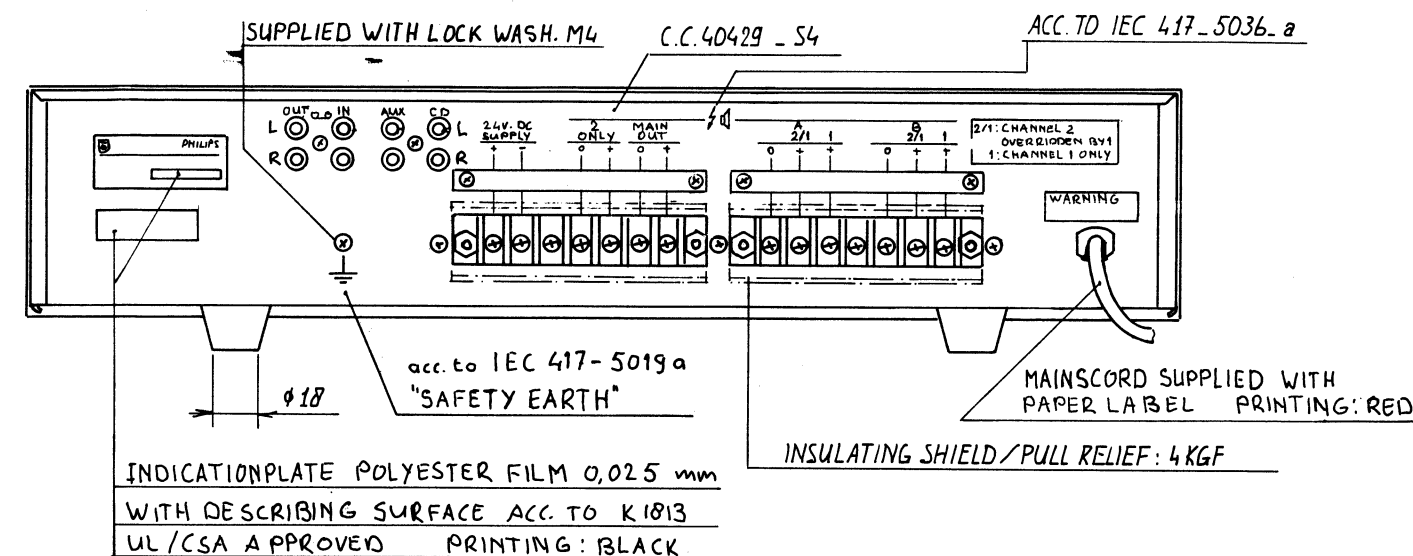
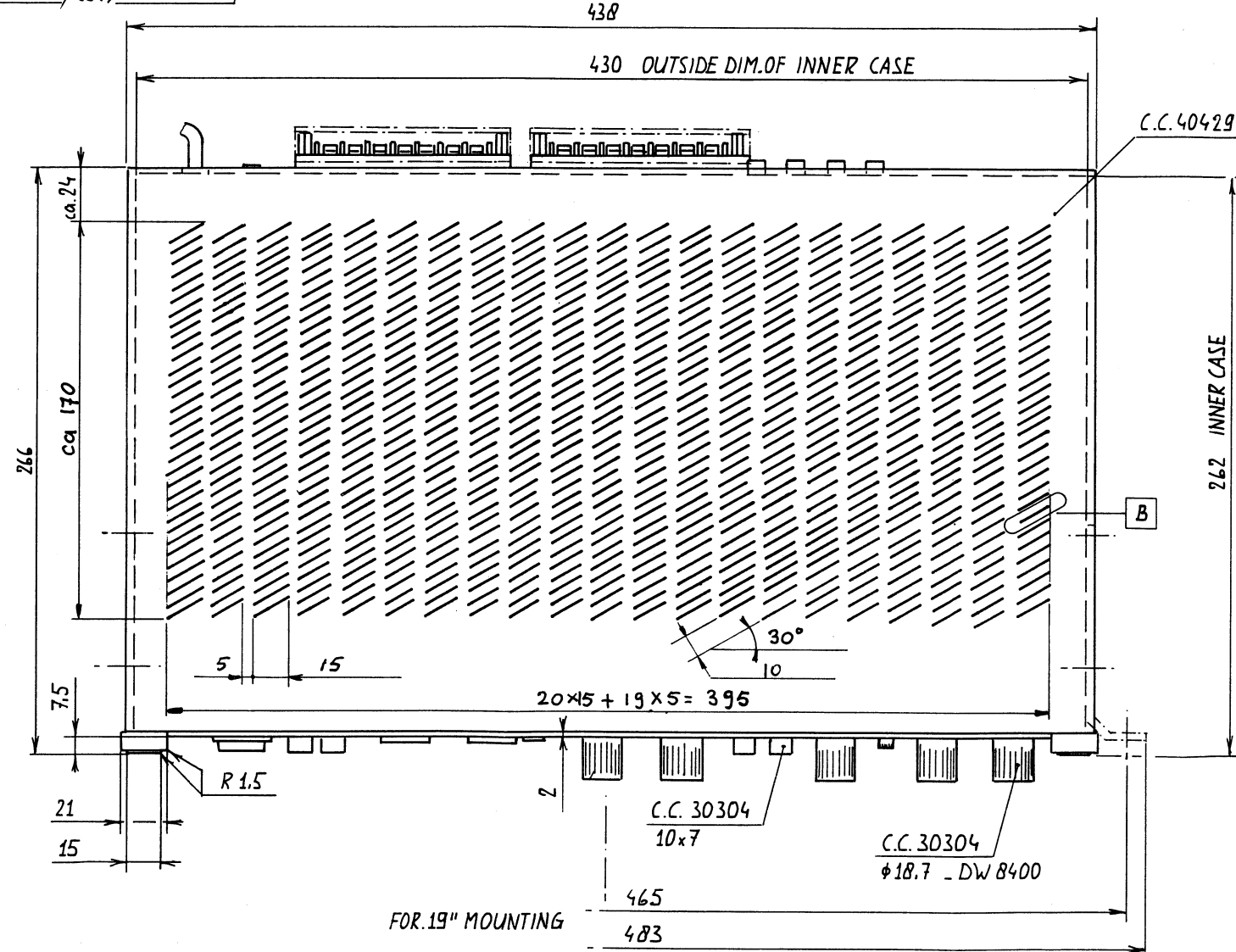
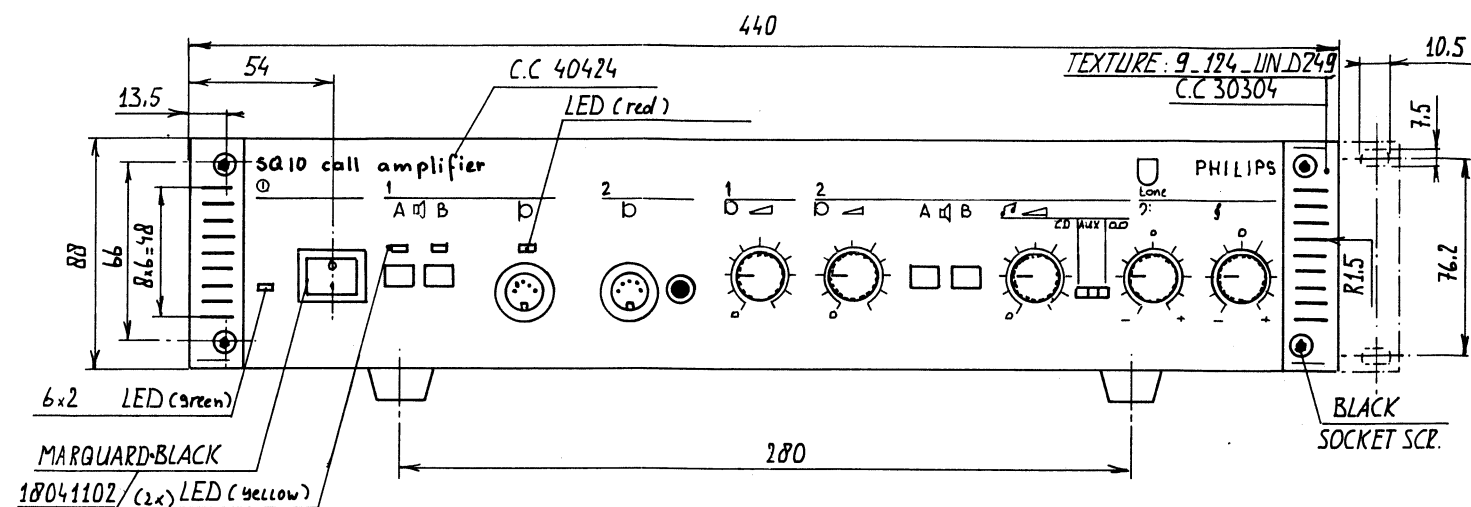
WIRING DIAGRAMS



MIXING AMP SQ-10

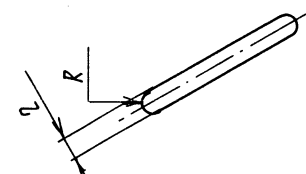
SQ-10 MIXING AMPLIFIER



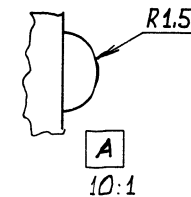


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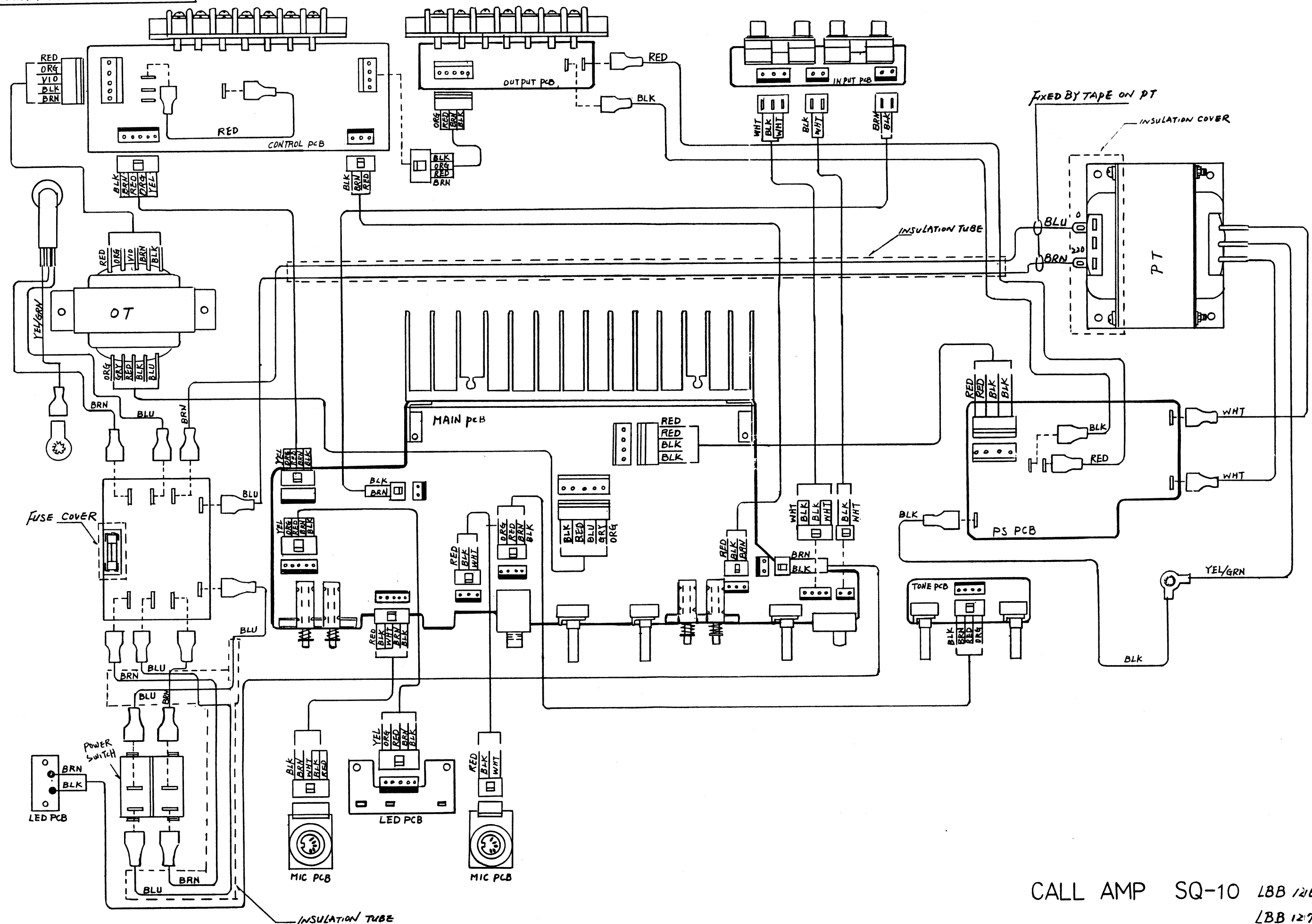
DRAWING ALSO VALID FOR: LBB 1217/00: CALL AMPLIFIER - LOW:
8900 1217 0001



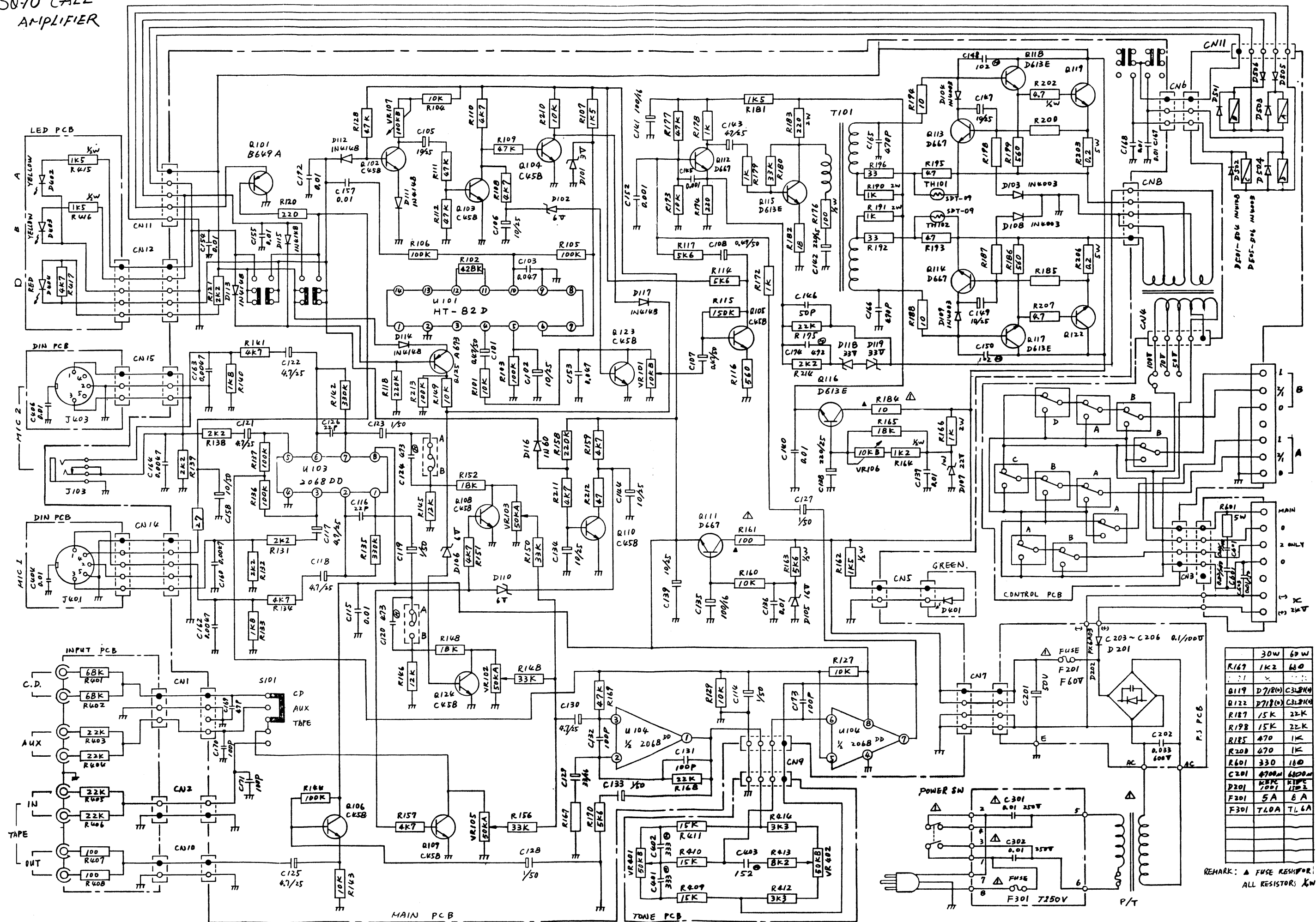
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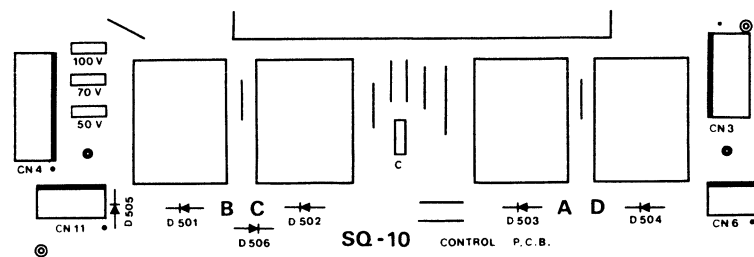


WIRING DIAGRAMS

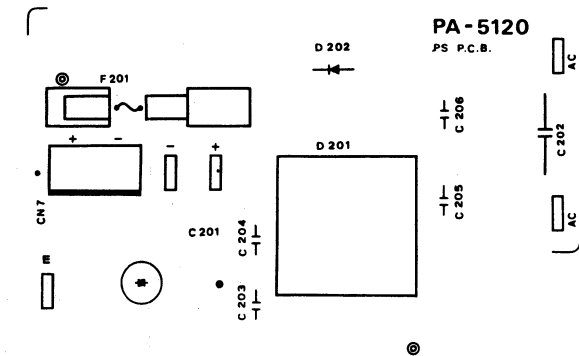
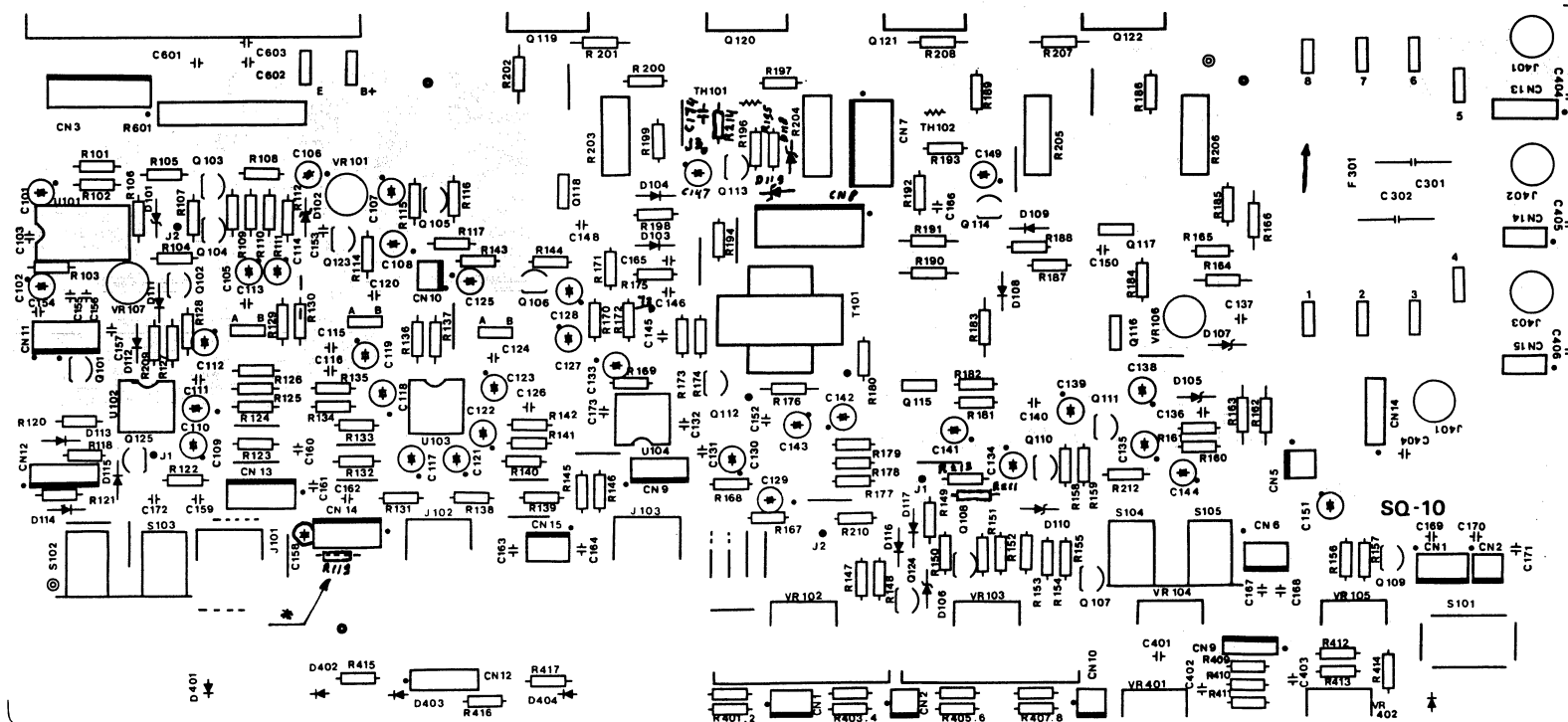


SO-10 CALL
AMPLIFIER



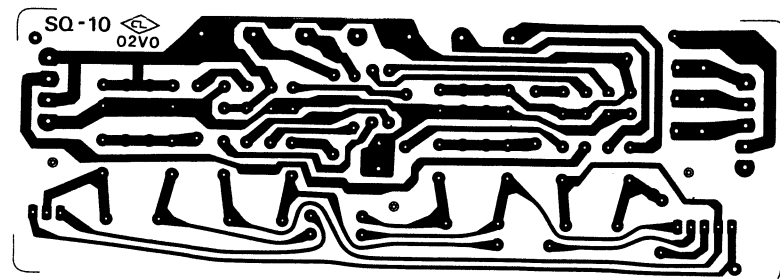


Resistor only valid for:
 ← Only valid for: LBB 1216/00 Call amp. 30W 8900 121 60001
 LBB 1217/00 Call amp. 60W 8900 121 70001

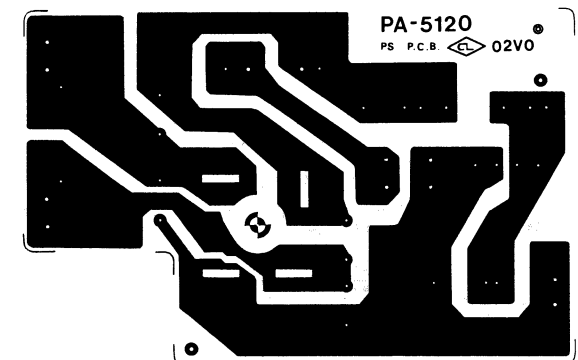
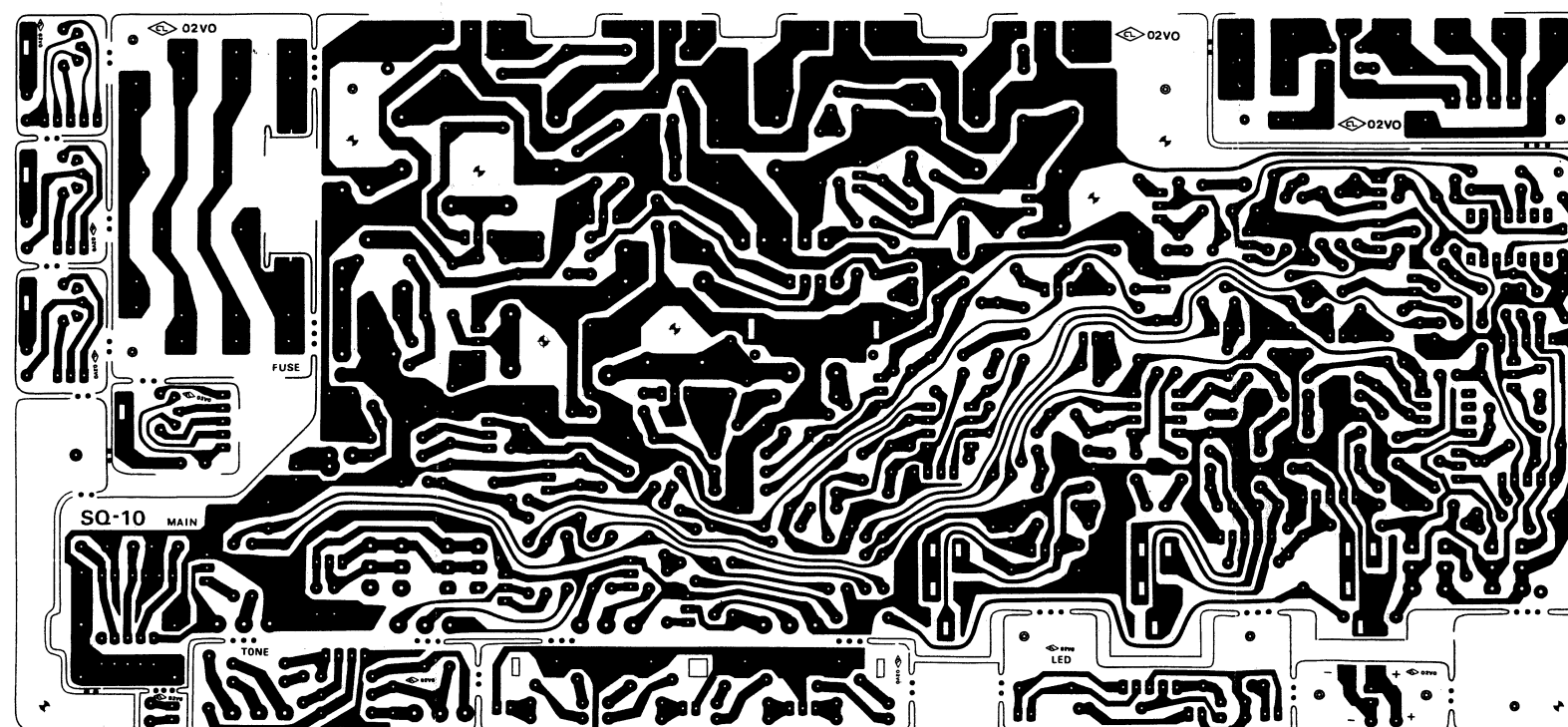


Also valid for: LBB 1212/00 Mixer 60W 8900 121 20001

LBB 1216/00 Call amp. 30W 8900 121 60001
 LBB 1217/00 Call amp. 60W 8900 121 70001



← Only valid for LBB 1216/00 Call amp. 30W 0900 121 60001
 LBB 1217/00 Call amp. 60W 0900 121 70001



Also valid for: LBB 1212/00 Mixer 60W 0900 121 20001

LBB 1216/00 Call amp 30W 0900 121 60001
 LBB 1217/00 Call amp 60W 0900 121 70001